

Claims

1. A cast or forged suspension trailing arm for suspending a heavy vehicle chassis from a beam-type axle, the trailing arm comprising an integral axle locating feature.
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2. A trailing arm according to Claim 1 wherein the axle locating feature is arranged to fully encircle the axle.
3. A trailing arm according to Claim 1 or 2 wherein the thickness of the arm
10 above the axle locating feature is less than 50 mm, preferably less than 30 mm, even more preferably less than 20 mm.
4. A trailing arm according to any preceding Claim wherein the axle locating
15 feature is integral with a chassis mounting feature to facilitate the mounting of the arm to a chassis component of a vehicle.
5. A trailing arm according to Claim 1, Claim 2 or Claim 3 wherein the axle locating feature is formed from first and second sections.
- 20 6. A trailing arm according to Claim 5 wherein the first section comprises a portion of the axle locating feature and a chassis mounting feature to facilitate the mounting of the arm to the chassis component.
7. A trailing arm according to Claim 5 or Claim 6 wherein the second section
25 comprises a portion of the axle locating feature and a bracket for mounting a spring.
8. A trailing arm according to any one of Claims 4 to 7 wherein section of the arm intermediate the chassis mounting feature and the axle locating feature has an I-or C-section profile comprising first and second flanges spaced by a web.
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9. A trailing arm according to Claim 7 or Claim 8 wherein the axle locating feature comprises an opening therein proximate the web of the I or C-section and inboard thereof.
- 35 10. A trailing arm according to any preceding claim comprising an integral damper mounting feature for a suspension damper or shock absorber.

11. A trailing arm according to any one of Claims 7 to 10 wherein the bending strength of the I or C-section is greater proximate the axle locating feature than proximate the chassis mounting feature.
- 5 12. A trailing arm according to Claim 11 wherein the flange thickness and/or web thickness and/or flange width and/or web depth are different proximate the axle locating portion with respect to the chassis mounting feature so as to achieve the difference in bending strength.
- 10 13. A trailing arm according to any preceding Claim, wherein the arm is provided with one or more recessed, concave, or convex portions so as to facilitate the fitment of additional suspension or braking components proximate the arm.
- 15 14. A suspension assembly incorporating a suspension trailing arm according to any preceding claim and a beam-type axle, wherein the arm is welded to the axle at the axle locating feature.
- 20 15. A suspension assembly according to Claim 14 wherein the welds are positioned so as to carry a portion of the vertical load from the axle to the arm, in use.
16. A suspension assembly comprising first and second trailing arms according to any preceding Claim secured to a beam-type axle, the arms being asymmetric.
- 25 17. A suspension assembly comprising an axle and a first trailing arm, the first arm comprising an axle locating feature having first and second axle wrap portions, the wrap portions encircling the axle and having complementary circumferential mating faces, the faces being welded together such that no welding of the locating feature to the axle occurs at the mating faces.
- 30 18. An assembly according to Claim 17 wherein a strip of material is provided intermediate the faces and the axle to substantially prevent welding of the wrap portions to the axle and provide improved durability.
- 35 19. An assembly according to Claim 17 or Claim 18 wherein the weld comprises a plurality of weld passes.

20 An assembly according to any one of Claims 17 to 19 wherein the complementary faces are angled away from each other in a radially outward direction to accommodate the weld material.

5 21 Assembly according to one of Claims 17 to 20 wherein a circumferential spacing is provided between the complementary circumferential mating faces.

22 An assembly according to any of Claims 17 to 21 wherein at least one opening is provided in each of the first and second axle wrap portions.

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23 An assembly according to Claim 22 wherein two openings are provided in a rear most of the axle wrap portions.

24 An assembly according to Claim 22 or 23 wherein the first and second wrap portions are welded to the axle along the edges of the openings.

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25 An assembly according to any one of Claims 17 to 24 wherein the external dimensions of the axle are substantially the same as the internal dimensions of the axle locating feature such that a close fit therebetween is provided.

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26 An assembly according to any one of Claims 17 to 25 wherein each of the first and second wrap portions encircle substantially one half of the axle.

27 An assembly according to any one of Claims 17 to 26 wherein the axle wrap portions are cast or forged.

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28 A method of securing an axle locating feature of a suspension trailing arm to an axle, the locating feature comprising first and second axle wrap portions the method comprising the steps of:

- 30 i) offering up the first and second axle wrap portions to the axle such that the axle is encircled;
- ii) securing the axle wrap portions to the axle.

29 The method of Claim 28 wherein the axle wrap portions comprise complementary circumferential mating edges and the first and second axle wrap portions are secured together by welding along the mating edges before or after the axle wrap portions are secured to the axle.

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30 The method of Claim 29 wherein the first and second axle wrap portions are welded together such that no welding of the wrap portions to the axle occurs.

5 31 The method of Claim 28 or 30 wherein the first and second wrap portions further comprise first and second openings respectively and the axle wrap portions are welded to the axle along the edge of the openings to secure the axle wrap portions to the axle.

10 32 The method of Claim 31 wherein the welds along the mating edges are allowed to cool before the welding of the wrap portions to the axle takes place.

15 33 The method according to any one of Claims 28 to 32 wherein the external dimensions of the axle are substantially the same as the internal dimensions of the locating feature, and wherein a circumferential spacing exists between the complementary mating edges of the wrap portions prior to welding.

20 34 A cast or forged suspension trailing arm for suspending a chassis from a beam-type axle of a heavy commercial vehicle further comprising a bracket for the mounting of a brake, or a brake part.

35 A trailing arm according to Claim 34 comprising a bracket for mounting a disc brake carrier.

25 36 A trailing arm according to Claim 34 comprising at least a portion of a disc brake carrier.